FIG. 1

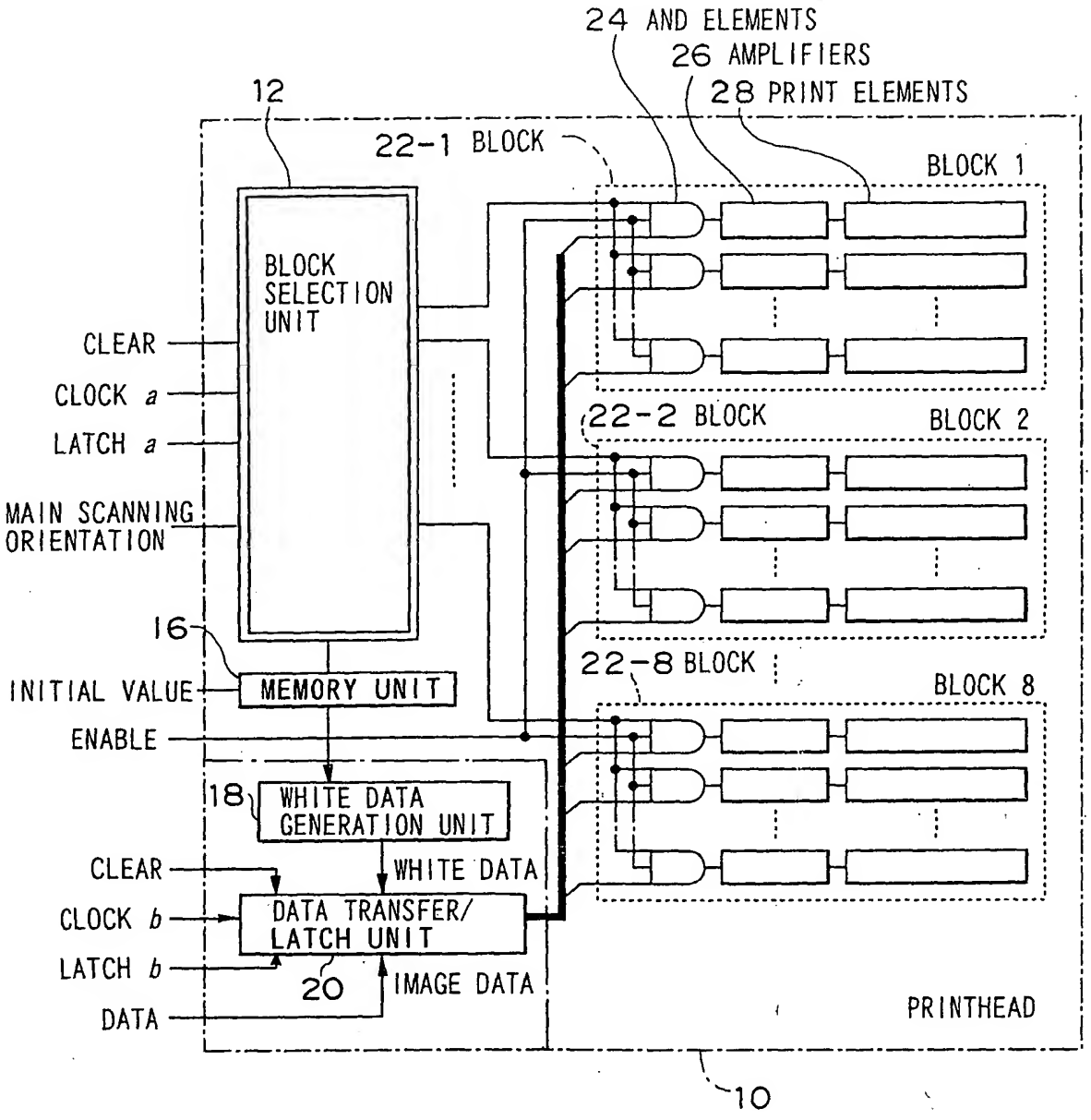

24 AND ELEMENTS
26 AMPLIFIERS
28 PRINT ELEMENTS
12
22-1 BLOCK
BLOCK 1
BLOCK SELECTION UNIT
CLEAR
CLOCK a
LATCH a
MAIN SCANNING ORIENTATION
22-2 BLOCK
BLOCK 2
16
INITIAL VALUE
MEMORY UNIT
22-8 BLOCK
BLOCK 8
ENABLE
18
WHITE DATA GENERATION UNIT
CLEAR
WHITE DATA
CLOCK b
DATA TRANSFER/ LATCH UNIT
LATCH b
20
IMAGE DATA
DATA
PRINTHEAD
10

FIG. 2

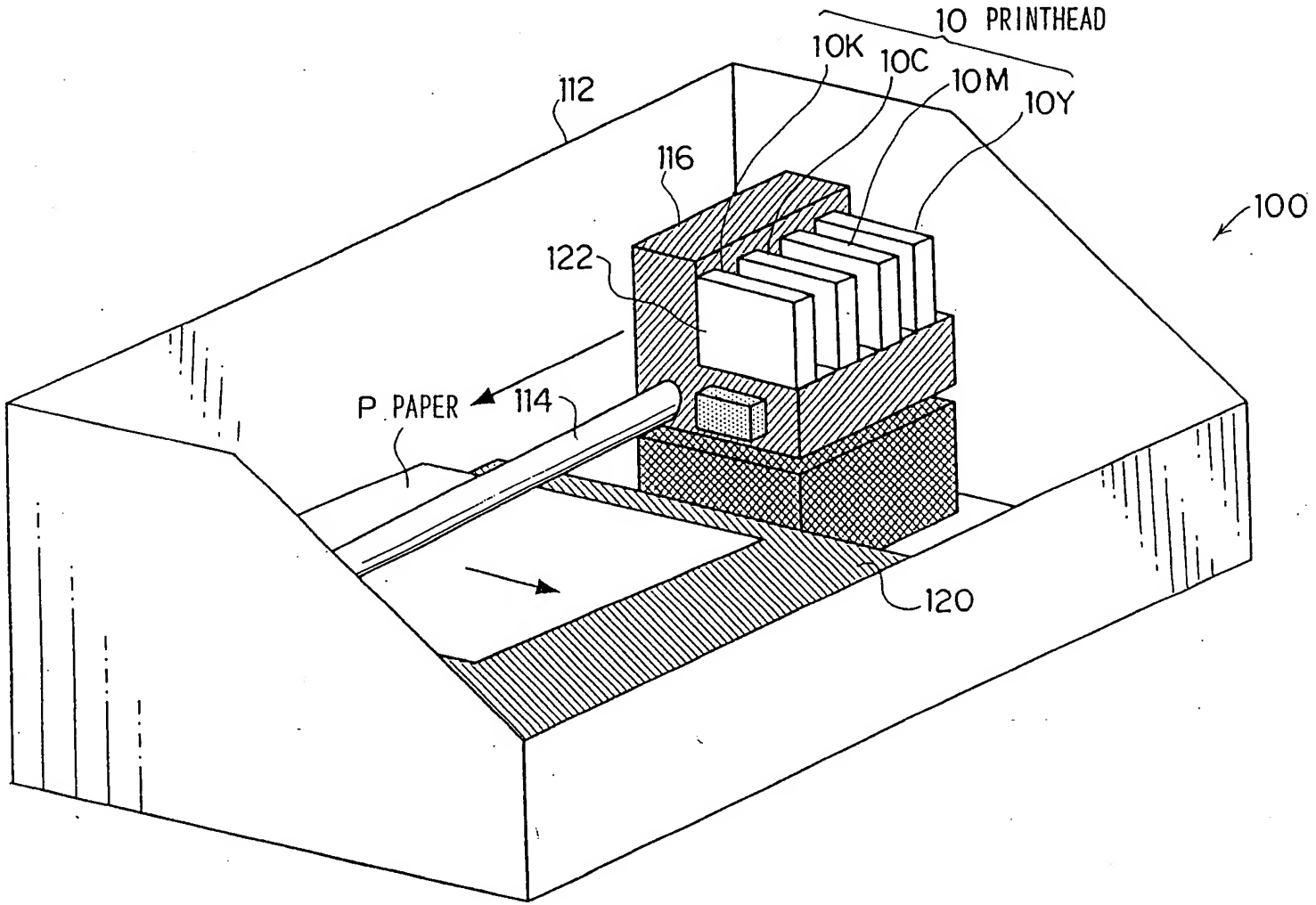


FIG. 3

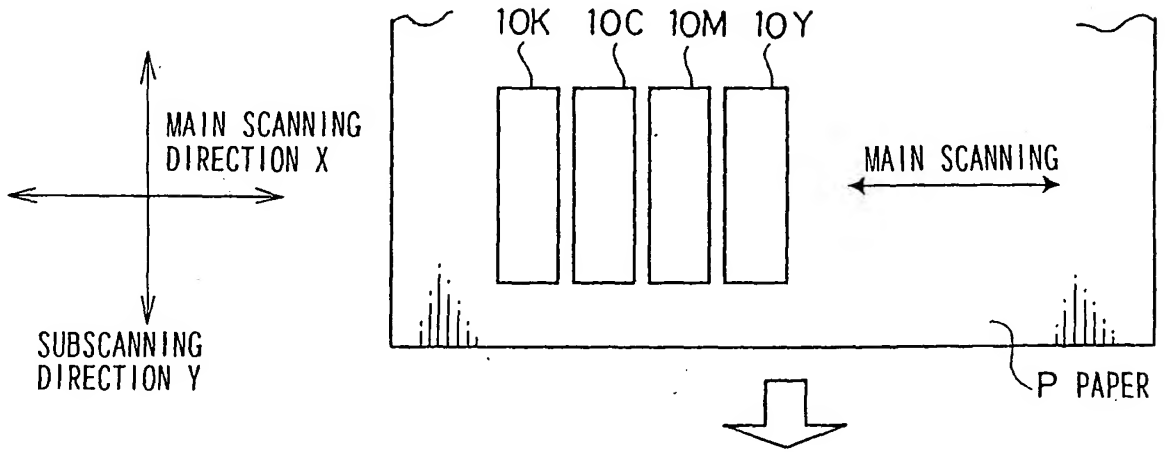

MAIN SCANNING
DIRECTION X
SUBSCANNING
DIRECTION Y
10K
10C
10M
10Y
MAIN SCANNING
P PAPER

FIG. 4

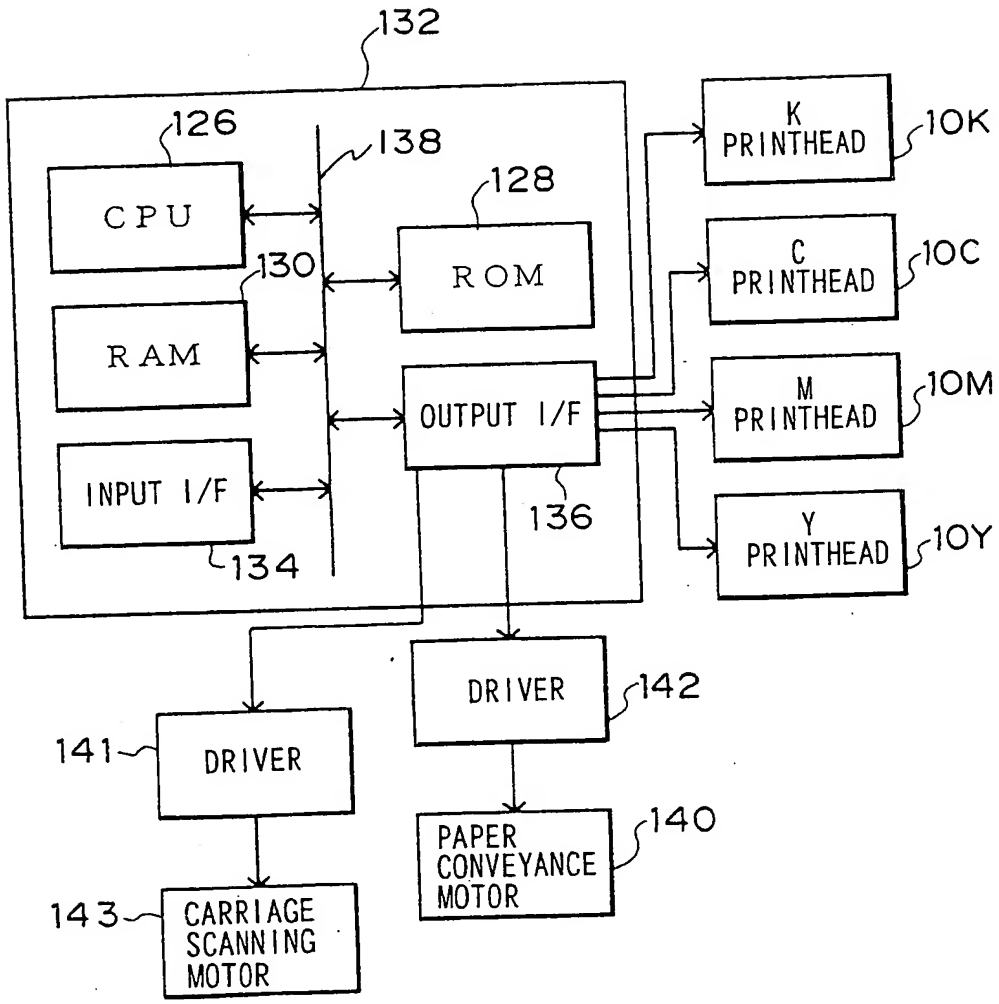

132
126
138
128
CPU
ROM
130
RAM
OUTPUT I/F
INPUT I/F
134
136
K PRINTHEAD
10K
C PRINTHEAD
10C
M PRINTHEAD
10M
Y PRINTHEAD
10Y
DRIVER
142
141
DRIVER
PAPER CONVEYANCE MOTOR
140
143
CARRIAGE SCANNING MOTOR

FIG. 5

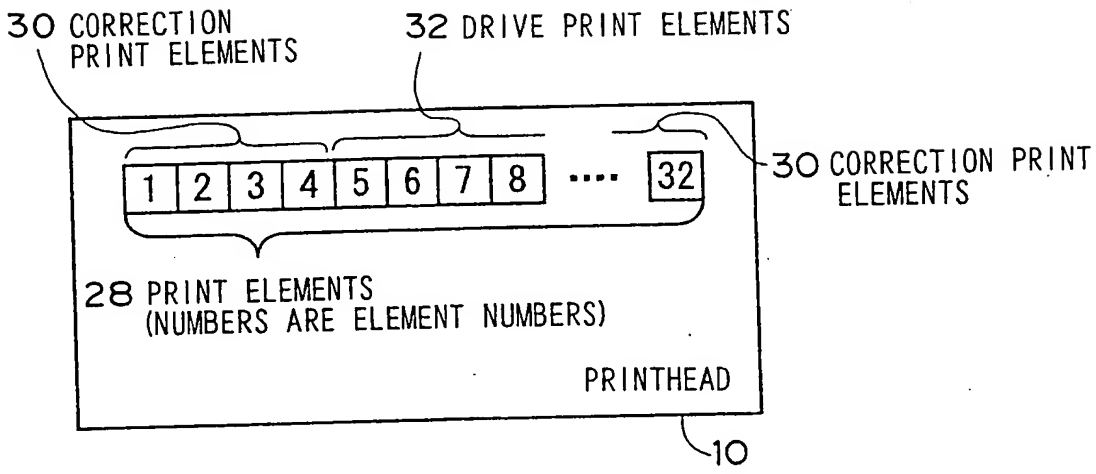
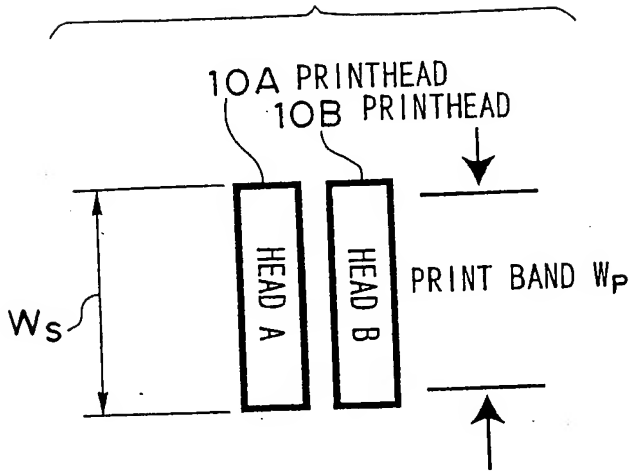

30 CORRECTION PRINT ELEMENTS
32 DRIVE PRINT ELEMENTS
1
2
3
4
5
6
7
8
....
32
30 CORRECTION PRINT ELEMENTS
28 PRINT ELEMENTS
(NUMBERS ARE ELEMENT NUMBERS)
PRINTHEAD
10

FIG. 6



$W_S > W_P$

FIG. 7

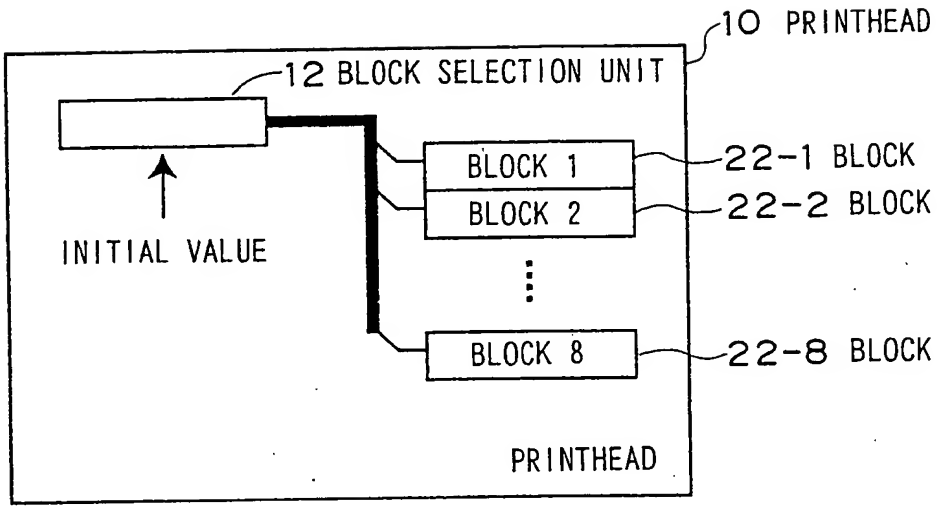

10 PRINTHEAD
12 BLOCK SELECTION UNIT
INITIAL VALUE
BLOCK 1
BLOCK 2
BLOCK 8
22-1 BLOCK
22-2 BLOCK
22-8 BLOCK
PRINTHEAD

FIG. 8

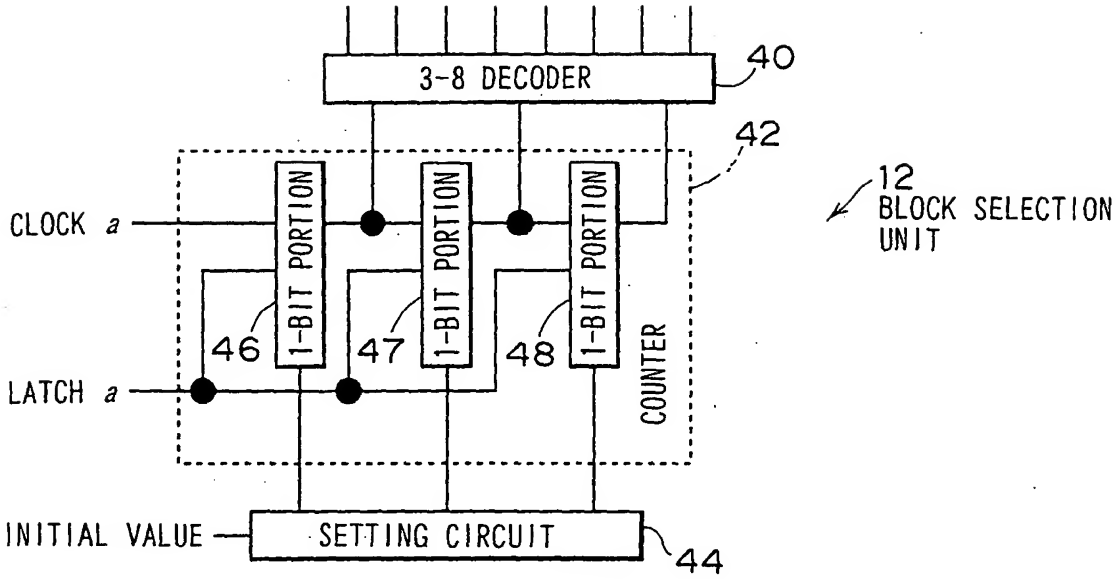

3-8 DECODER
40
42
12
BLOCK SELECTION UNIT
CLOCK a
LATCH a
1-BIT PORTION
1-BIT PORTION
1-BIT PORTION
46
47
48
COUNTER
INITIAL VALUE
SETTING CIRCUIT
44

FIG. 9

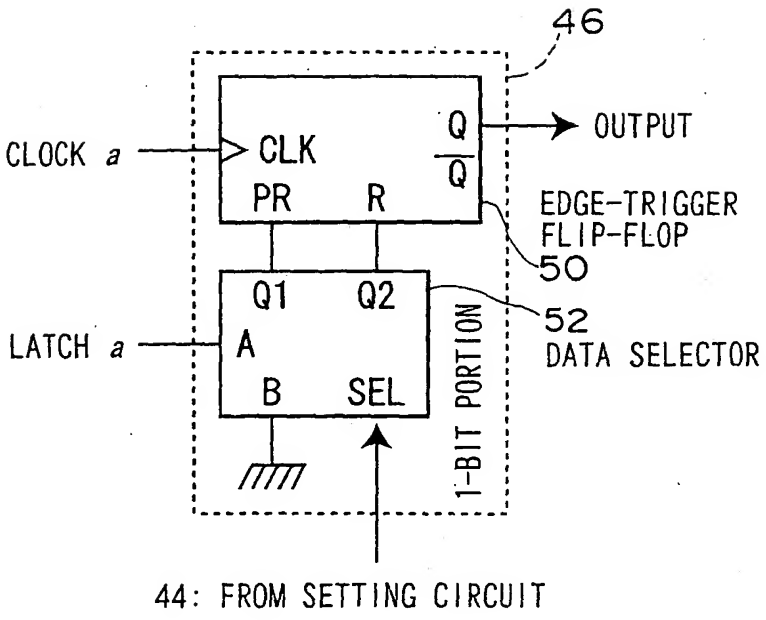

46
CLOCK a
CLK
Q
Q
OUTPUT
PR
R
EDGE-TRIGGER
FLIP-FLOP
50
Q1
Q2
52
DATA SELECTOR
LATCH a
A
B
SEL
1-BIT PORTION
44: FROM SETTING CIRCUIT

FIG. 10

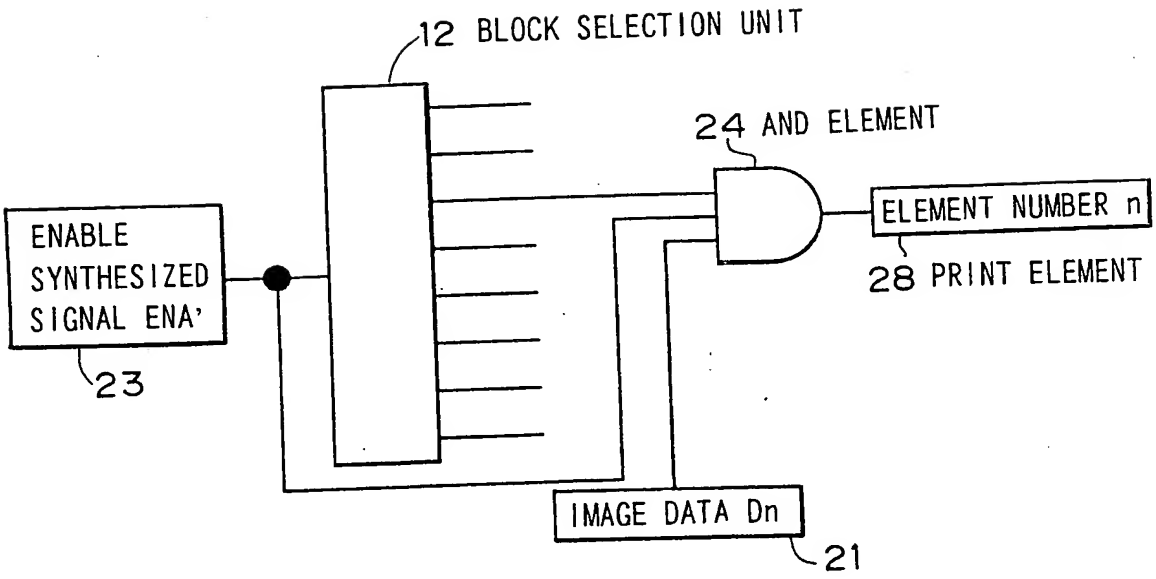

12 BLOCK SELECTION UNIT
24 AND ELEMENT
ENABLE SYNTHESIZED SIGNAL ENA'
23
ELEMENT NUMBER n
28 PRINT ELEMENT
IMAGE DATA Dn
21

FIG. 11

BLOCK NUMBER	ALLOCATED ELEMENT NUMBERS
1	1, 9, 17, 25
2	2, 10, 18, 26
3	3, 11, 19, 27
4	4, 12, 20, 28
5	5, 13, 21, 29
6	6, 14, 22, 30
7	7, 15, 23, 31
8	8, 16, 24, 32

FIG. 12

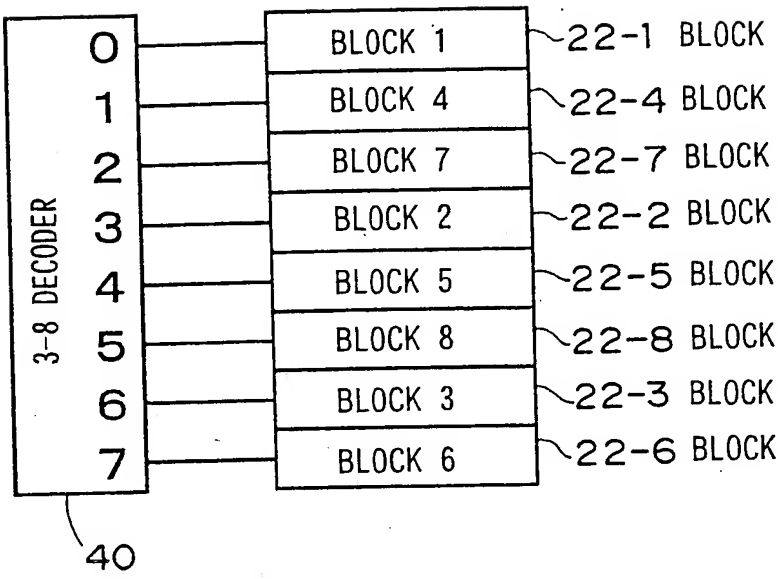

3-8 DECODER
0
1
2
3
4
5
6
7
40
BLOCK 1
BLOCK 4
BLOCK 7
BLOCK 2
BLOCK 5
BLOCK 8
BLOCK 3
BLOCK 6
22-1 BLOCK
22-4 BLOCK
22-7 BLOCK
22-2 BLOCK
22-5 BLOCK
22-8 BLOCK
22-3 BLOCK
22-6 BLOCK

FIG. 13

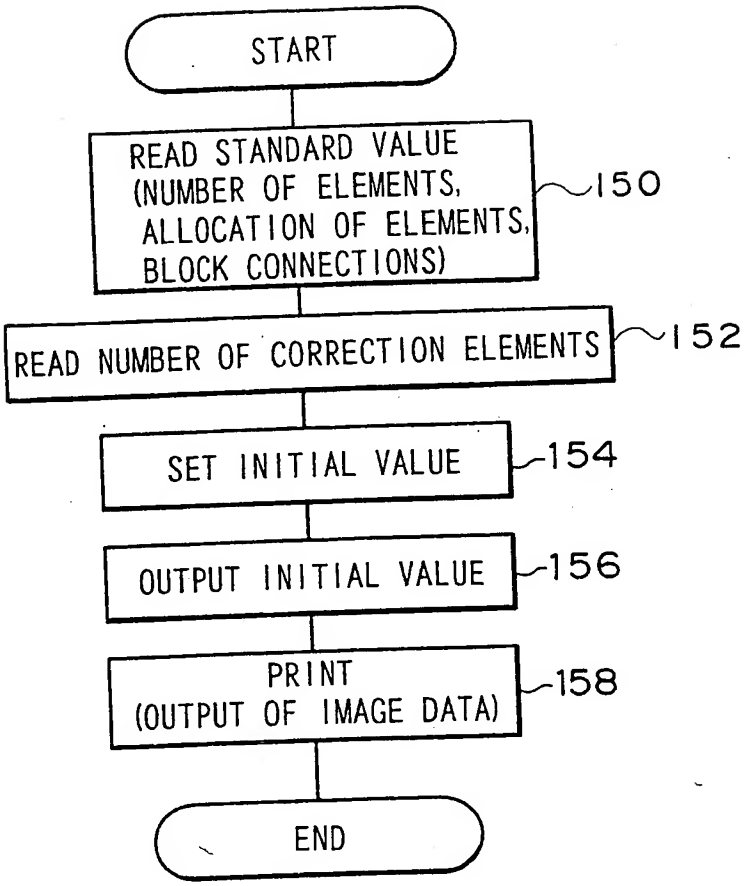

START
READ STANDARD VALUE (NUMBER OF ELEMENTS, ALLOCATION OF ELEMENTS, BLOCK CONNECTIONS)
150
READ NUMBER OF CORRECTION ELEMENTS
152
SET INITIAL VALUE
154
OUTPUT INITIAL VALUE
156
PRINT (OUTPUT OF IMAGE DATA)
158
END

FIG. 14

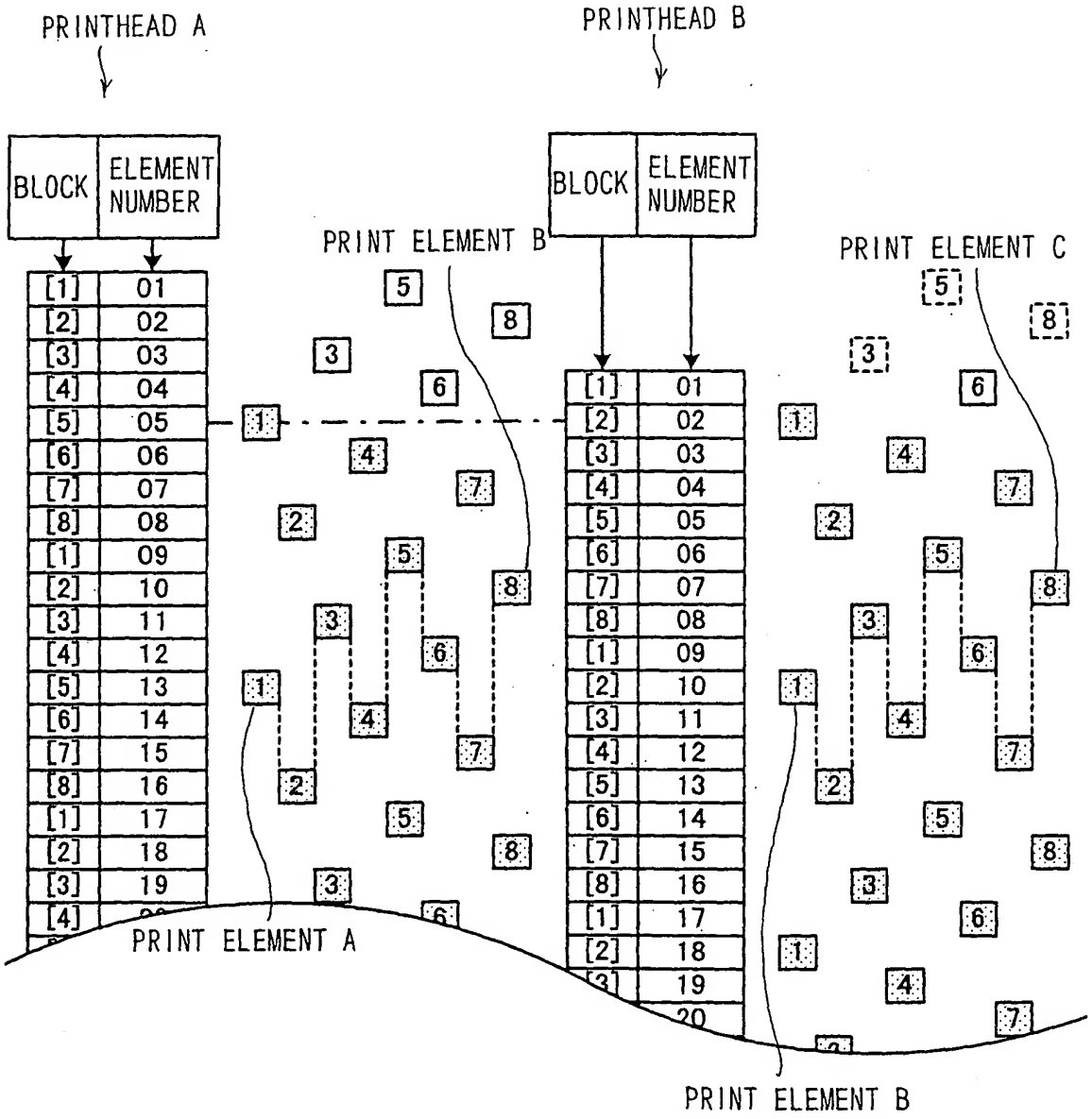

PRINTHEAD A
PRINTHEAD B
BLOCK
ELEMENT NUMBER
BLOCK
ELEMENT NUMBER
PRINT ELEMENT B
PRINT ELEMENT C
[1] 01
[2] 02
[3] 03
[4] 04
[5] 05
[6] 06
[7] 07
[8] 08
[1] 09
[2] 10
[3] 11
[4] 12
[5] 13
[6] 14
[7] 15
[8] 16
[1] 17
[2] 18
[3] 19
[4]
[1] 01
[2] 02
[3] 03
[4] 04
[5] 05
[6] 06
[7] 07
[8] 08
[1] 09
[2] 10
[3] 11
[4] 12
[5] 13
[6] 14
[7] 15
[8] 16
[1] 17
[2] 18
[3] 19
20
PRINT ELEMENT A
PRINT ELEMENT B

FIG. 15

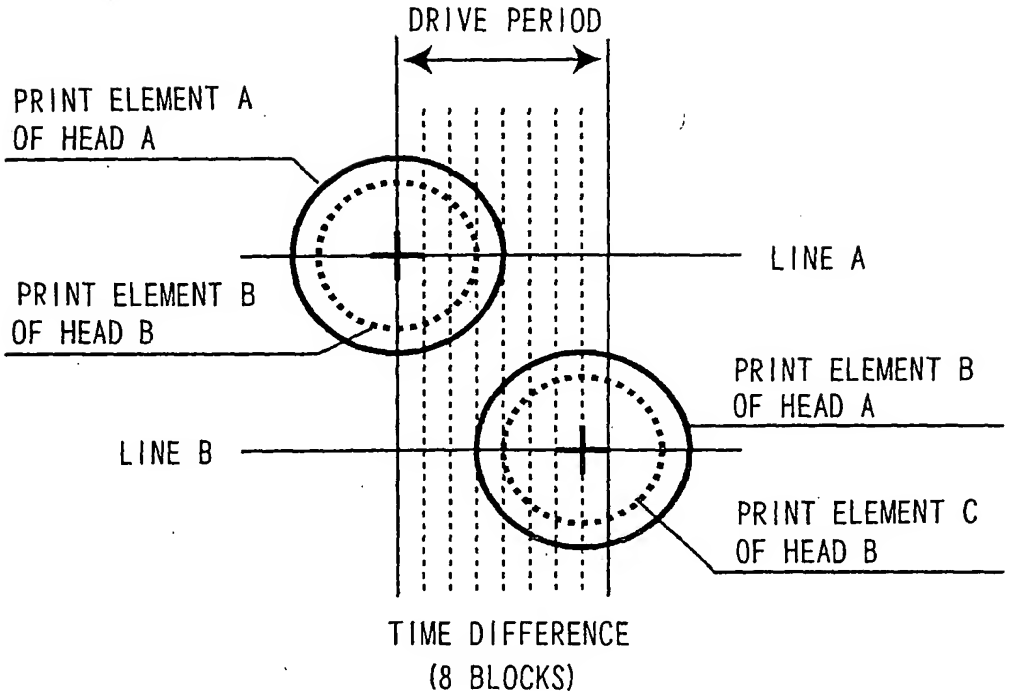

DRIVE PERIOD
PRINT ELEMENT A
OF HEAD A
LINE A
PRINT ELEMENT B
OF HEAD B
PRINT ELEMENT B
OF HEAD A
LINE B
PRINT ELEMENT C
OF HEAD B
TIME DIFFERENCE
(8 BLOCKS)

FIG. 16

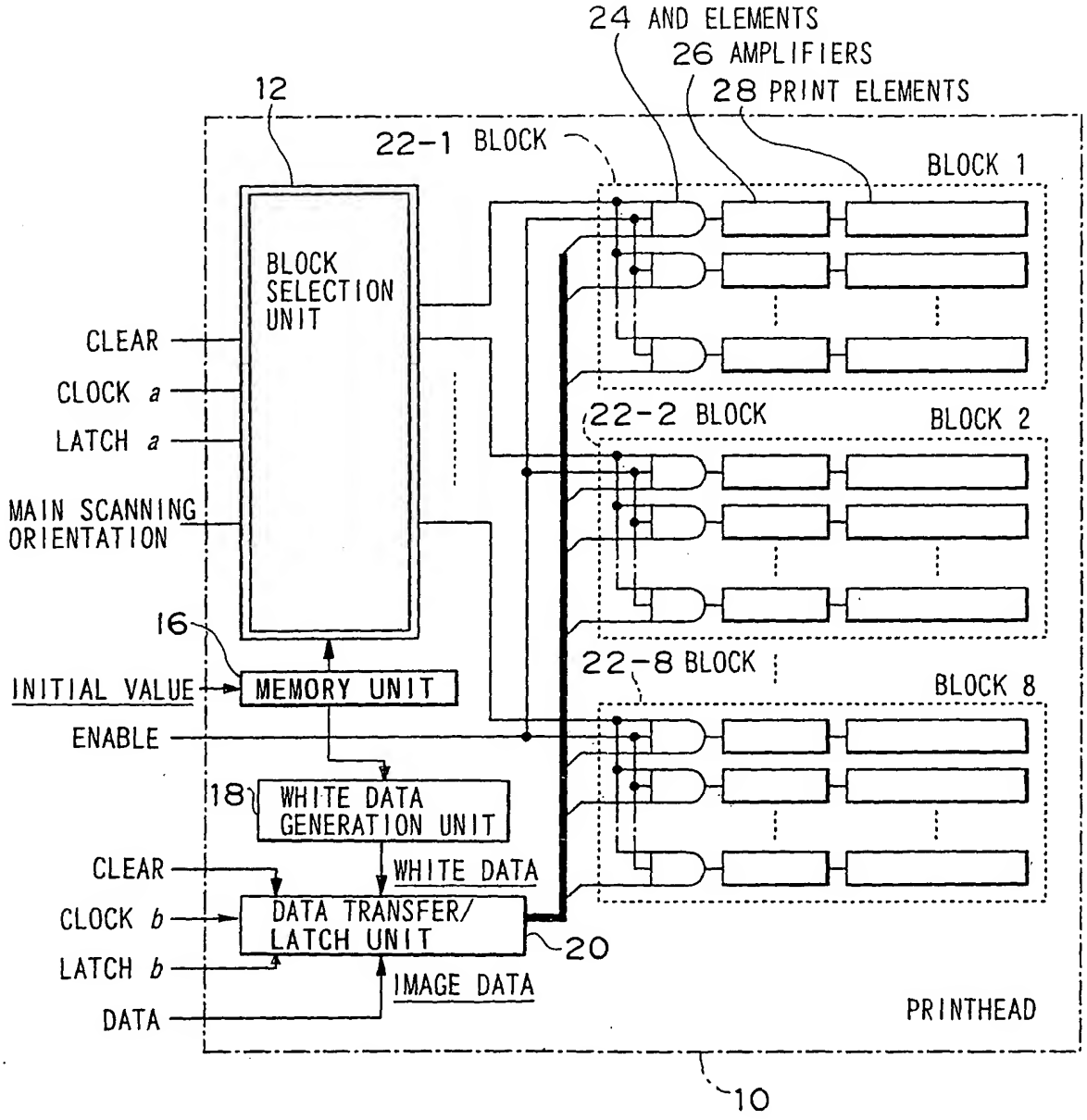

24 AND ELEMENTS
26 AMPLIFIERS
28 PRINT ELEMENTS
12
22-1 BLOCK
BLOCK 1
BLOCK SELECTION UNIT
CLEAR
CLOCK a
LATCH a
MAIN SCANNING ORIENTATION
22-2 BLOCK
BLOCK 2
16
INITIAL VALUE
MEMORY UNIT
22-8 BLOCK
BLOCK 8
ENABLE
18
WHITE DATA GENERATION UNIT
CLEAR
WHITE DATA
CLOCK b
DATA TRANSFER/ LATCH UNIT
20
LATCH b
IMAGE DATA
DATA
PRINTHEAD
10

FIG. 17

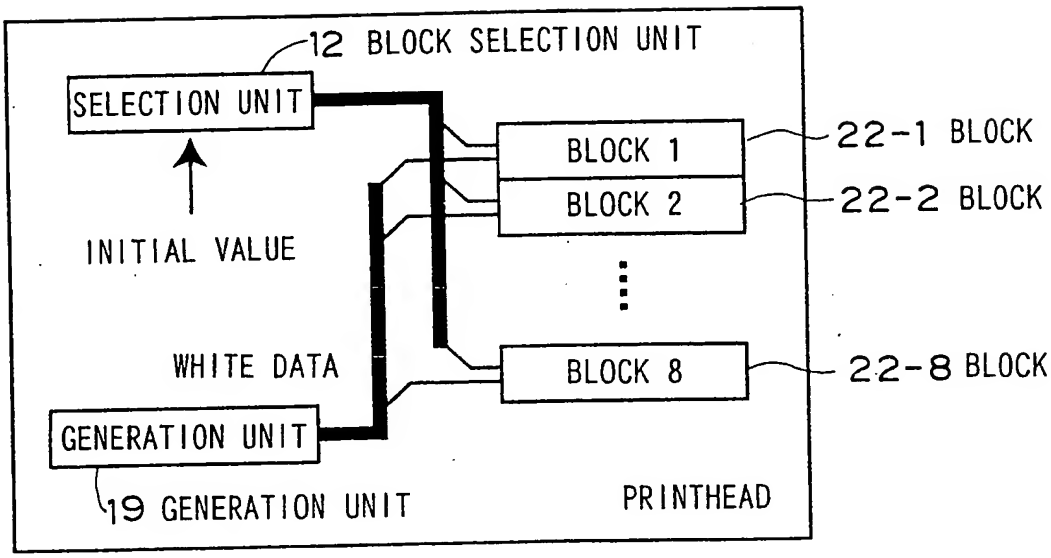

12 BLOCK SELECTION UNIT
SELECTION UNIT
INITIAL VALUE
WHITE DATA
GENERATION UNIT
19 GENERATION UNIT
BLOCK 1
BLOCK 2
BLOCK 8
22-1 BLOCK
22-2 BLOCK
22-8 BLOCK
PRINTHEAD

FIG. 18

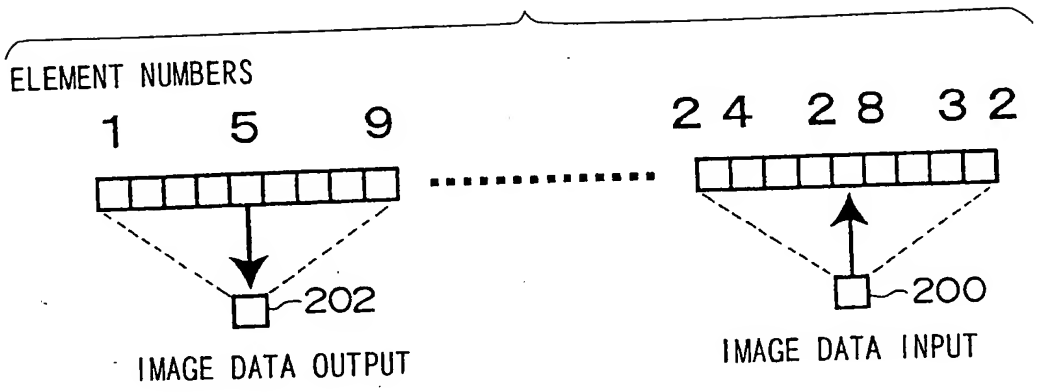

ELEMENT NUMBERS
1
5
9
24
28
32
202
200
IMAGE DATA OUTPUT
IMAGE DATA INPUT

FIG. 19

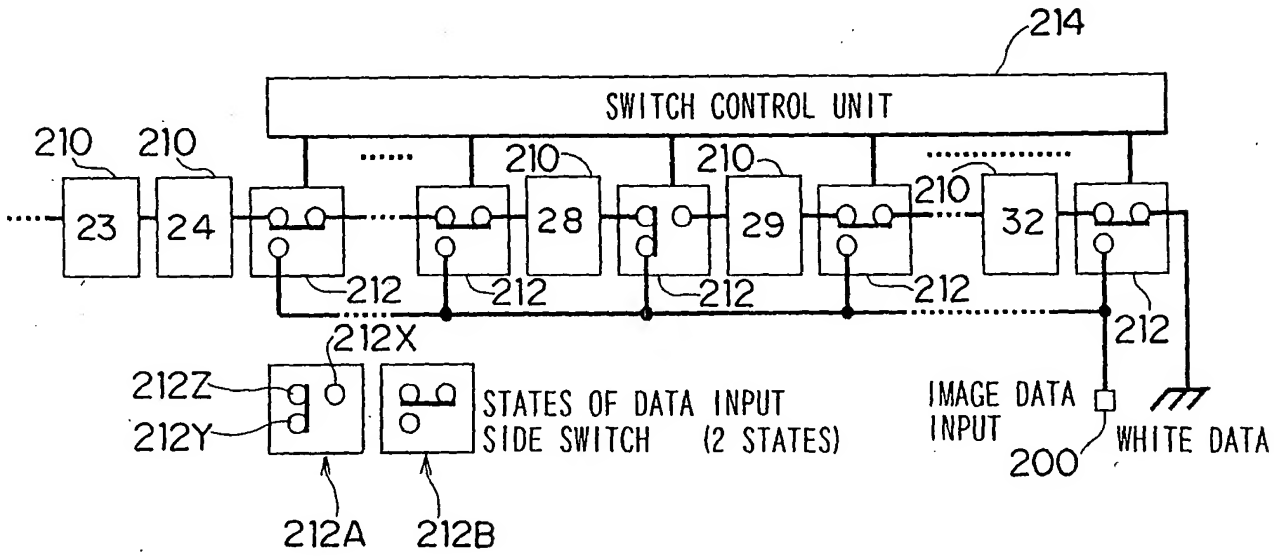

214
SWITCH CONTROL UNIT
210
210
210
210
210
23
24
28
29
32
212
212
212
212
212
212X
212Z
212Y
STATES OF DATA INPUT SIDE SWITCH (2 STATES)
IMAGE DATA INPUT
200
WHITE DATA
212A
212B

FIG. 20

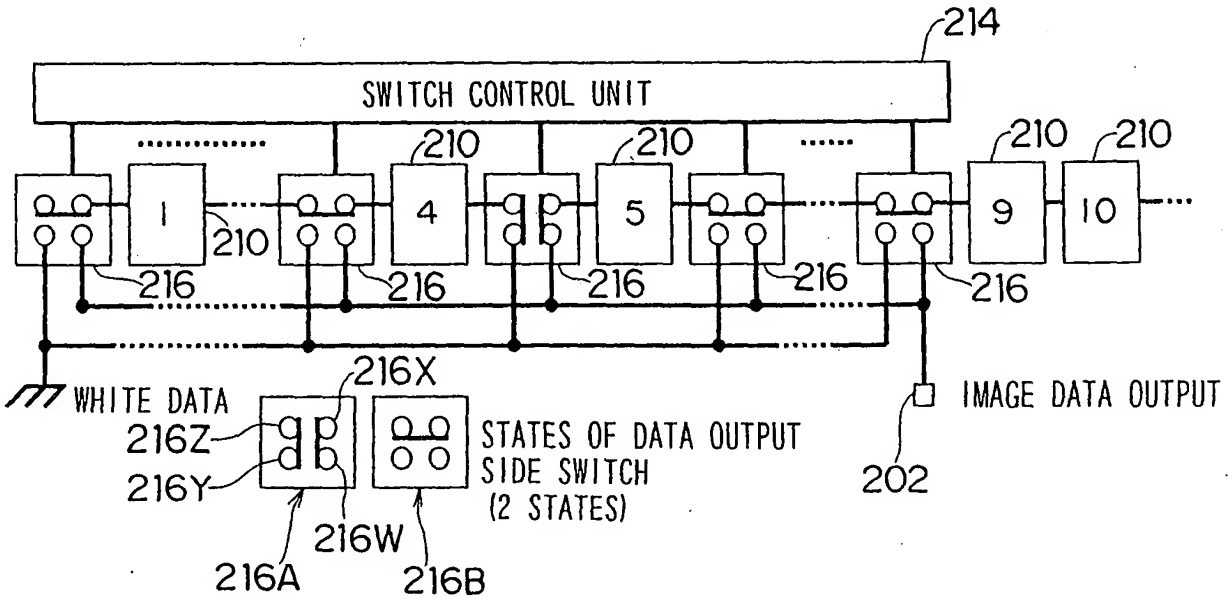

214
SWITCH CONTROL UNIT
210
210
210
210
1
4
5
9
10
216
216
216
216
216
216X
WHITE DATA
216Z
216Y
216W
216A
216B
STATES OF DATA OUTPUT SIDE SWITCH (2 STATES)
IMAGE DATA OUTPUT
202

FIG. 21

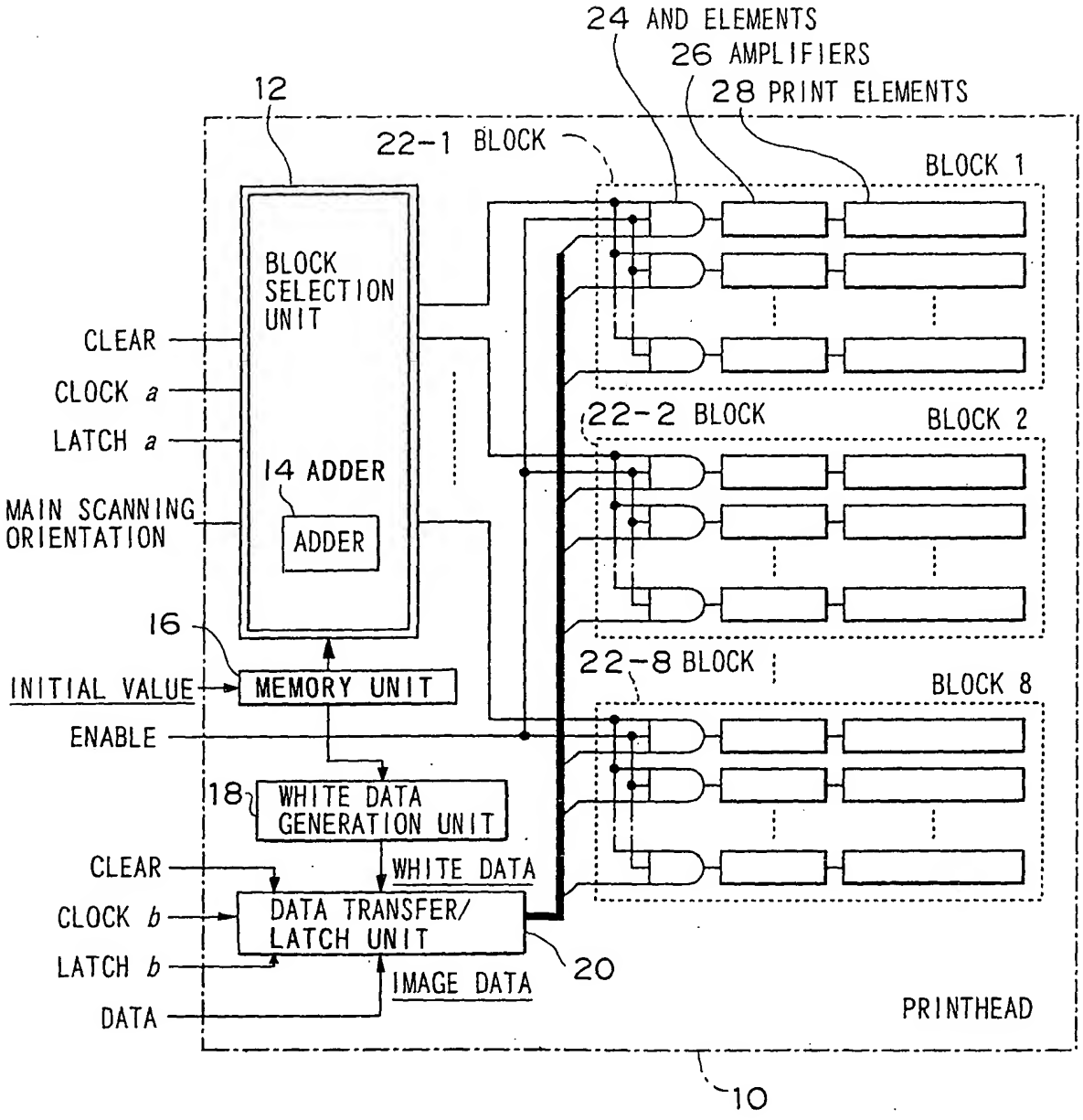

24 AND ELEMENTS
26 AMPLIFIERS
28 PRINT ELEMENTS
12
22-1 BLOCK
BLOCK 1
BLOCK SELECTION UNIT
CLEAR
CLOCK a
LATCH a
14 ADDER
ADDER
MAIN SCANNING ORIENTATION
22-2 BLOCK
BLOCK 2
16
INITIAL VALUE
MEMORY UNIT
22-8 BLOCK
BLOCK 8
ENABLE
18
WHITE DATA GENERATION UNIT
CLEAR
WHITE DATA
CLOCK b
DATA TRANSFER/ LATCH UNIT
20
LATCH b
IMAGE DATA
DATA
PRINTHEAD
10

FIG. 22

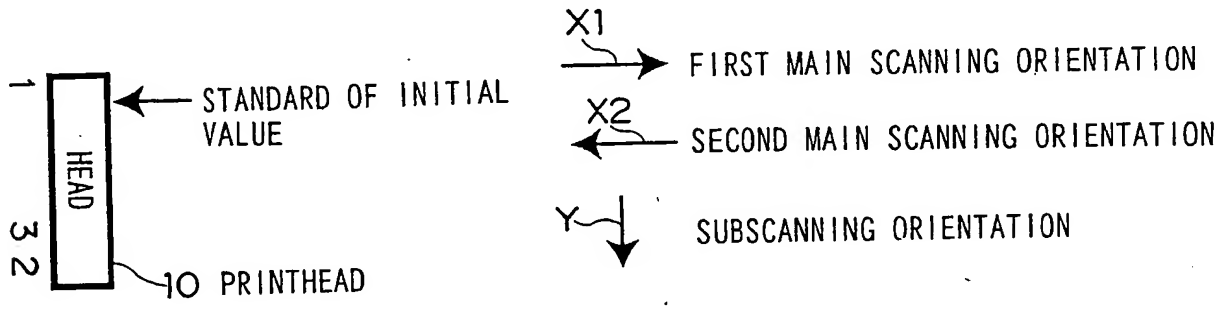

1
HEAD
32
STANDARD OF INITIAL VALUE
10 PRINTHEAD
X1
FIRST MAIN SCANNING ORIENTATION
X2
SECOND MAIN SCANNING ORIENTATION
Y
SUBSCANNING ORIENTATION

FIG. 23

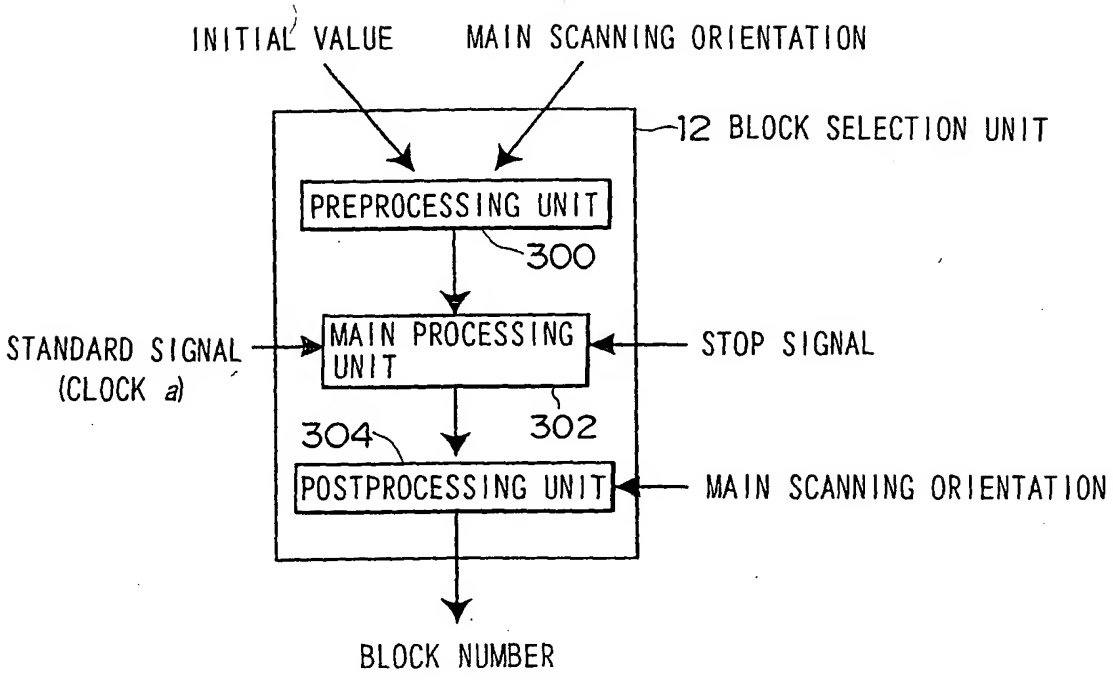

INITIAL VALUE
MAIN SCANNING ORIENTATION
12 BLOCK SELECTION UNIT
PREPROCESSING UNIT
300
STANDARD SIGNAL
(CLOCK a)
MAIN PROCESSING UNIT
STOP SIGNAL
304
302
POSTPROCESSING UNIT
MAIN SCANNING ORIENTATION
BLOCK NUMBER

FIG. 24

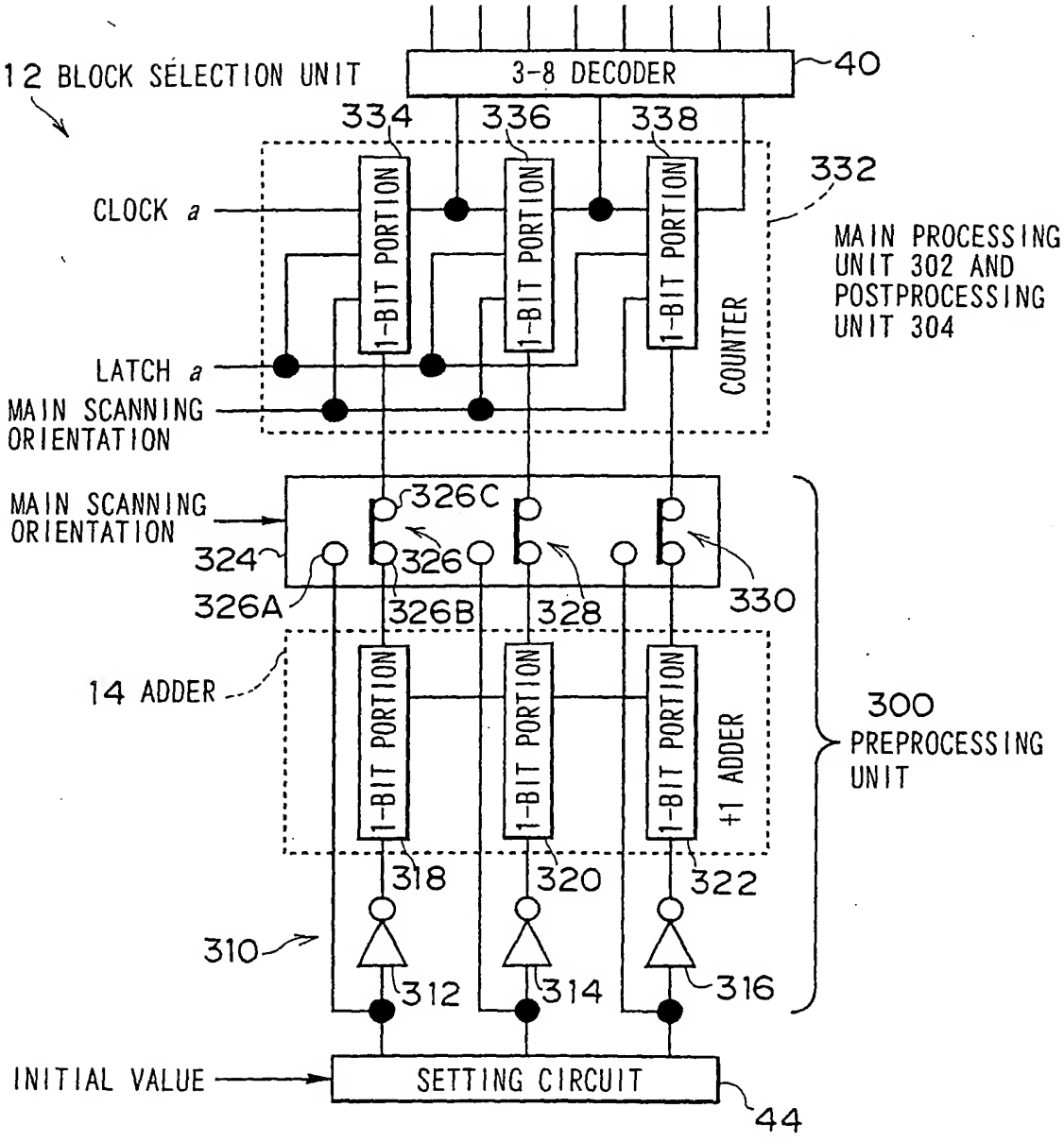

12 BLOCK SELECTION UNIT
3-8 DECODER
40
334
336
338
332
CLOCK a
1-BIT PORTION
1-BIT PORTION
1-BIT PORTION
COUNTER
MAIN PROCESSING UNIT 302 AND POSTPROCESSING UNIT 304
LATCH a
MAIN SCANNING ORIENTATION
MAIN SCANNING ORIENTATION
326C
324
326
326A
326B
328
330
14 ADDER
1-BIT PORTION
1-BIT PORTION
1-BIT PORTION
+1 ADDER
300 PREPROCESSING UNIT
318
320
322
310
312
314
316
INITIAL VALUE
SETTING CIRCUIT
44

FIG. 25

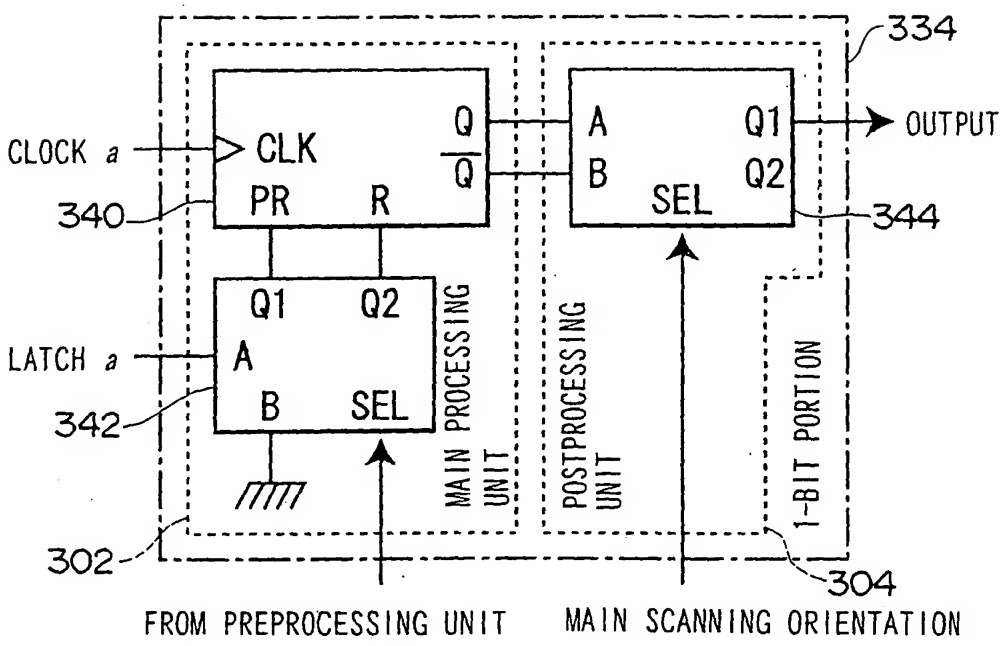

334
CLOCK a
CLK
Q
Q
PR
R
340
A
B
Q1
Q2
SEL
OUTPUT
344
LATCH a
Q1
Q2
A
B
SEL
342
MAIN PROCESSING UNIT
POSTPROCESSING UNIT
1-BIT PORTION
302
304
FROM PREPROCESSING UNIT
MAIN SCANNING ORIENTATION

FIG. 26

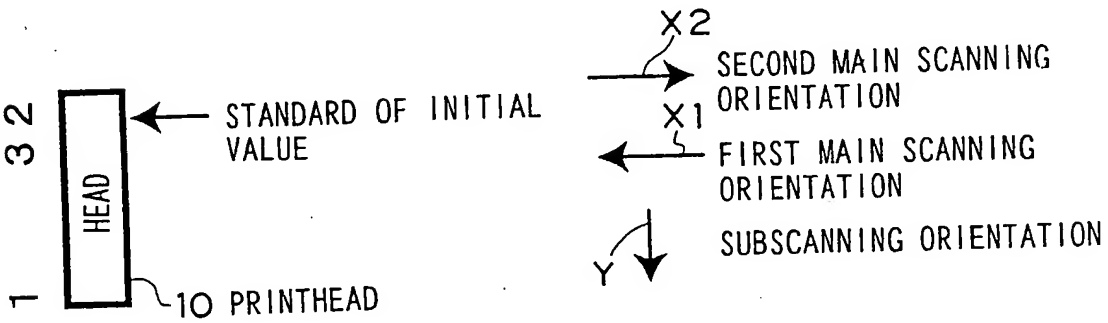

32
HEAD
1
STANDARD OF INITIAL VALUE
10 PRINTHEAD
X2
SECOND MAIN SCANNING ORIENTATION
X1
FIRST MAIN SCANNING ORIENTATION
Y
SUBSCANNING ORIENTATION

FIG. 27

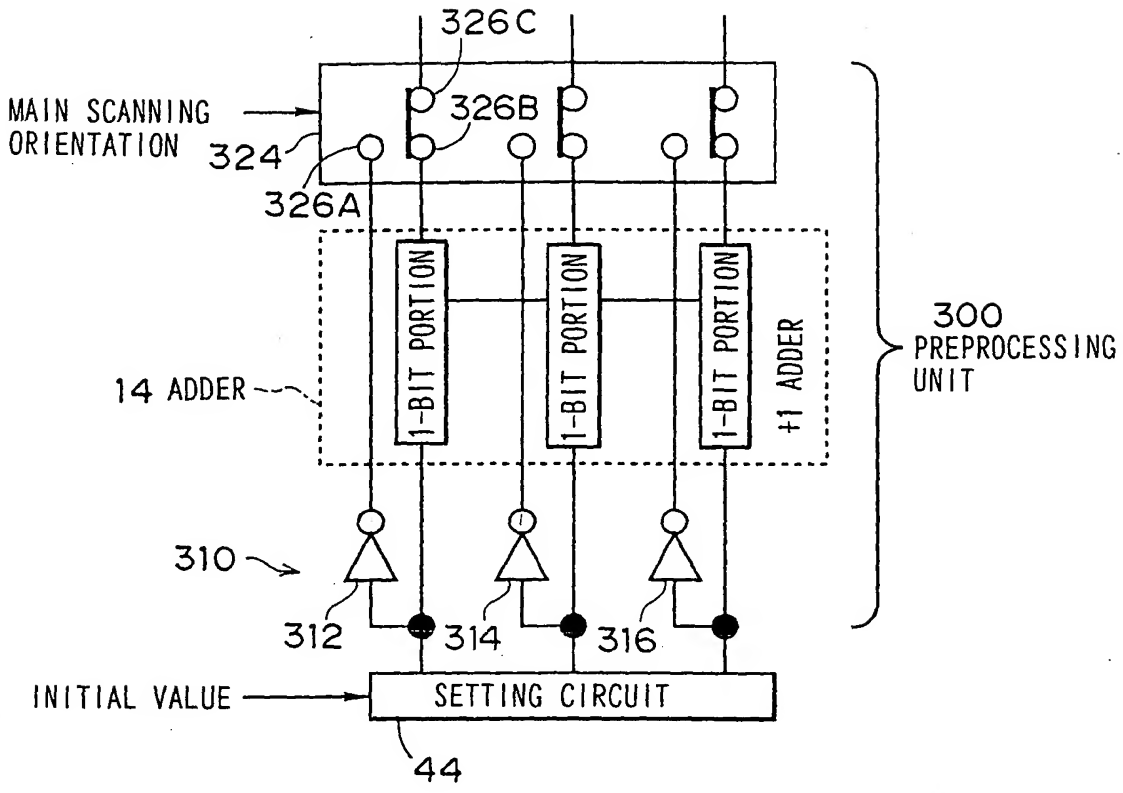

326C
326B
MAIN SCANNING ORIENTATION
324
326A
1-BIT PORTION
1-BIT PORTION
1-BIT PORTION
+1 ADDER
14 ADDER
300
PREPROCESSING UNIT
310
312
314
316
INITIAL VALUE
SETTING CIRCUIT
44

FIG. 28

SELECTION ORDER	*ELEMENT NUMBERS
1 (8)	1, 9, 17
2 (7)	4, 12, 20
3 (6)	7, 15, 23
4 (5)	2, 10, 18
5 (4)	5, 13, 21
6 (3)	8, 16, 24
7 (2)	3, 11, 19
8 (1)	6, 14, 22

FIG. 29

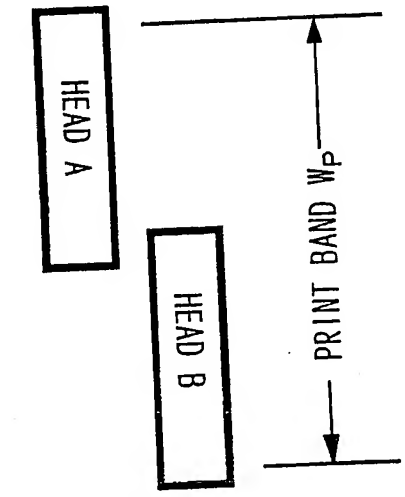


FIG. 30

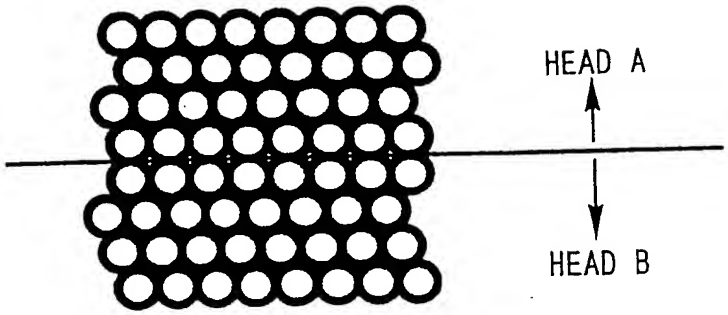


FIG. 31

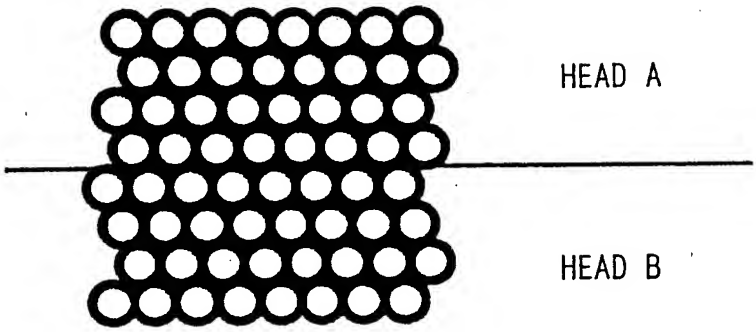


FIG. 32

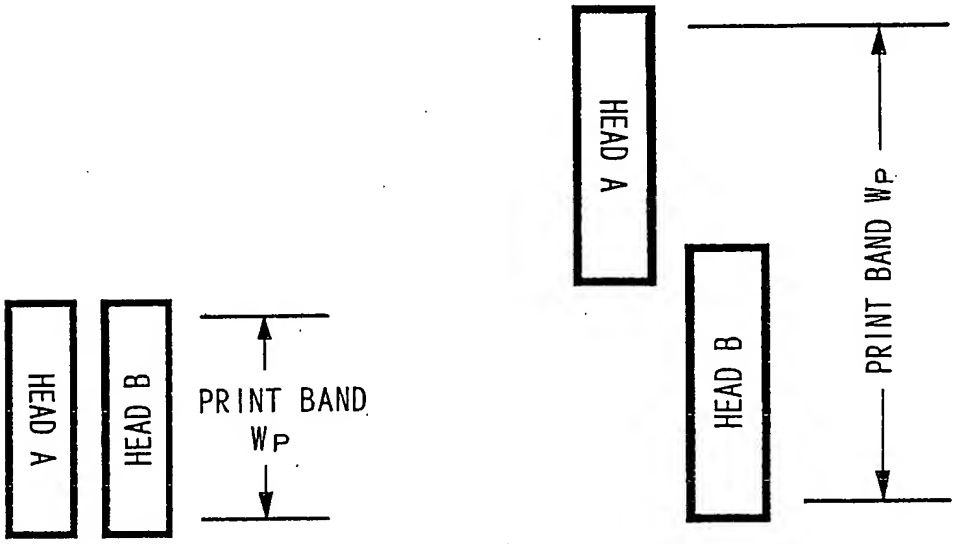


FIG. 33A

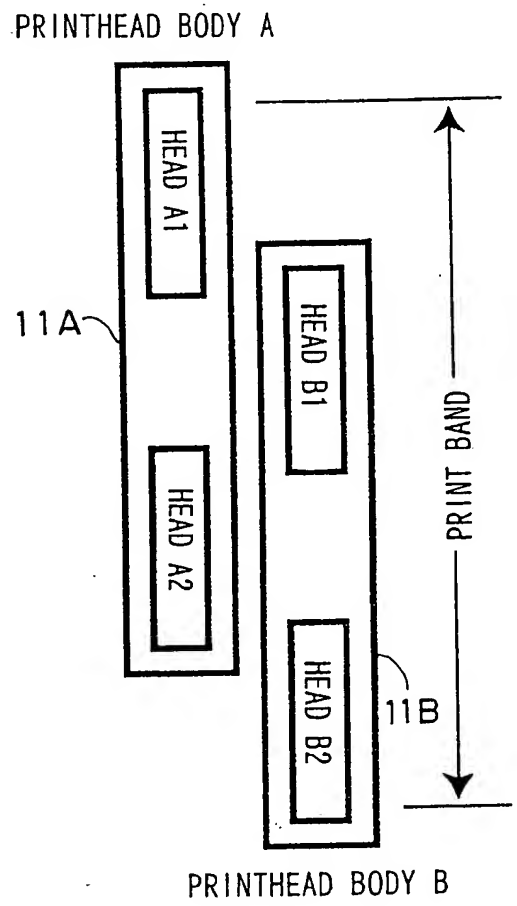


FIG. 33B

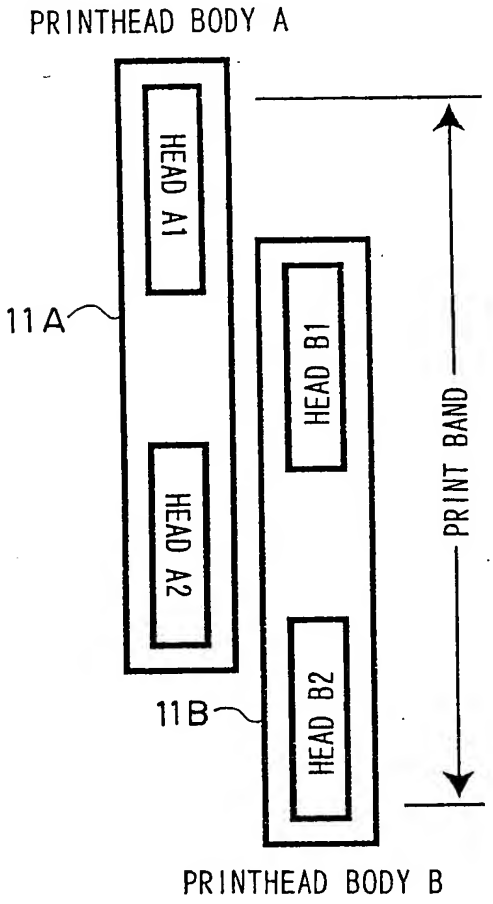


FIG.34A

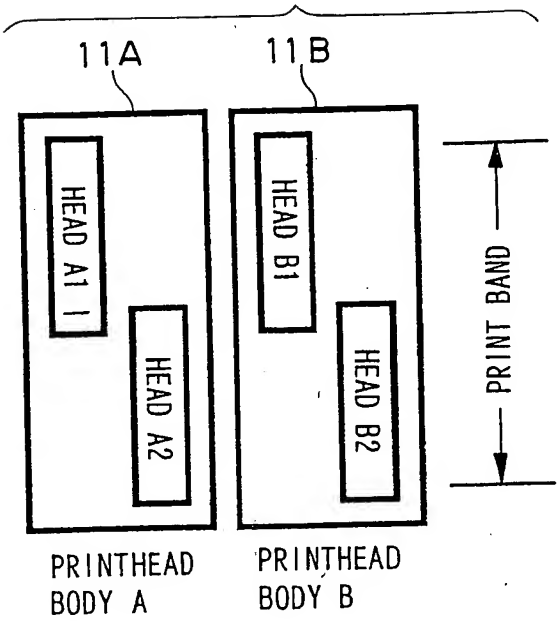


FIG.34B

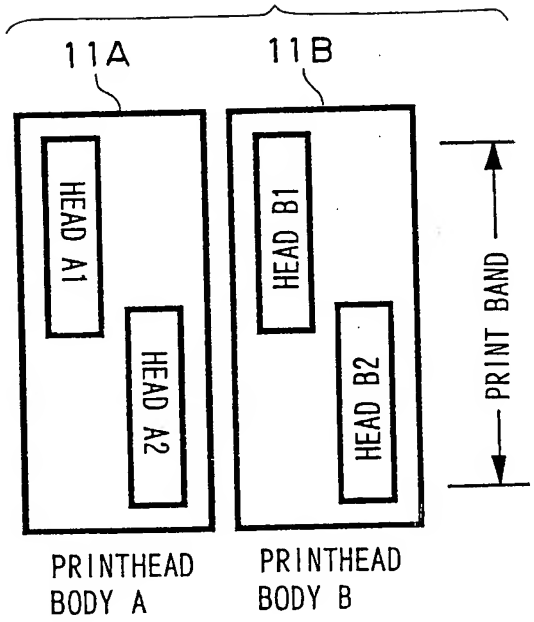


FIG. 35A

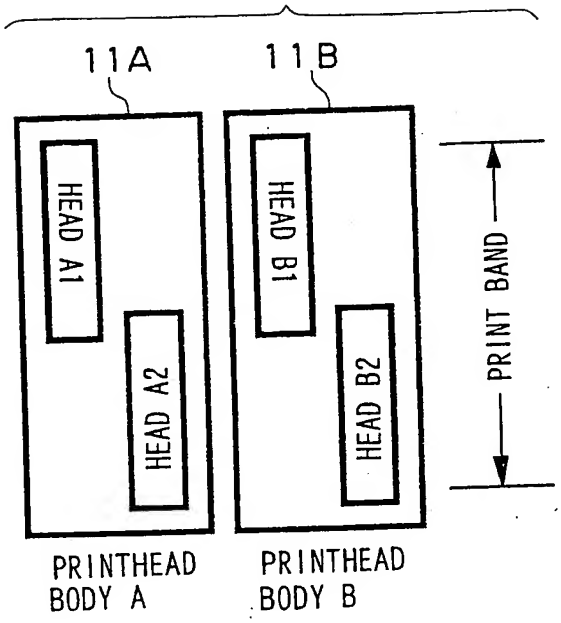


FIG. 35B

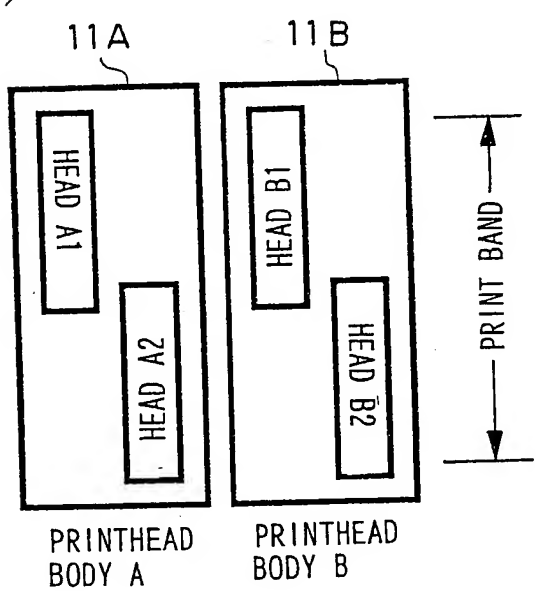
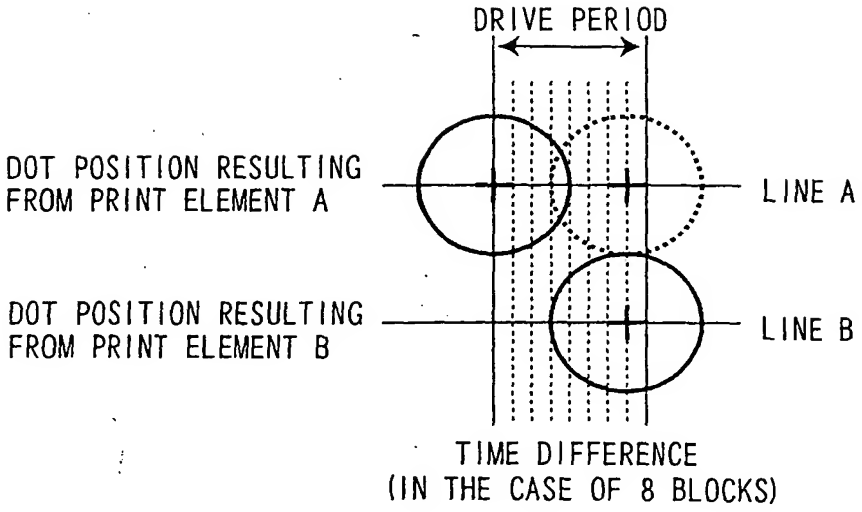



FIG. 36
PRIOR ART